TECHNICAL REVIEW DOCUMENT
for
OPERATING PERMIT 03OPWE254

Denver Regional Landfill (South) Inc.
Weld County
Facility ID: 1230079

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1. Purpose

This document will establish the basis for decisions made regarding the Applicable Requirements, Emission Factors, Monitoring Plan and Compliance Status of Emission Units covered within the Colorado Title V Operating Permit proposed for this site. It is designed for reference during review of the proposed permit by the EPA, during Public Comment, and for other interested parties. Information in this report is primarily from the application received on January 31, 2003, as well as discussions with the applicant. This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility, made in conjunction with the processing of this operating permit application, have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised Construction Permit.

2. Source Description

Denver Regional Landfill (South) Inc. (DRLS) is classified as a municipal solid waste landfill, which falls under the Standard Industrial Classification 4953. This facility is located at 1441 Weld County Road 6, Erie, Weld County, Colorado. There are no affected states within 50 miles of this facility. The following Federal Class I designated areas are within 100 kilometers of the plant: Rocky Mountain National Park, and Rawah Wilderness Area.

The facility is located in an area designated as attainment for all criteria pollutants. However, this facility is located in the 8-hr Ozone Control Area as defined in Regulation No.7, II.A.16. Based on the information provided by the applicant, the facility is categorized as a minor stationary source for PSD applicability purposes (no single criteria pollutant emissions with a Potential-to-Emit greater than 250 TPY) as of the issue date of this permit. The source therefore is not subject to the PSD review requirements of 40 CFR 52.21 (Colorado Regulation No. 3, Part D, Section IV). Future modifications to this facility may result in an exceedance of the major source threshold. Once that threshold is exceeded, future modifications at this facility resulting in a significant net emissions increase for any pollutant as listed in Regulation No. 3, Part D, Section II.A.44 or a modification which is major by itself may result in the application of the PSD review requirements.

Facility-wide emissions are outlined below:

Pollutant	Potential-to-Emit (tons/yr)	2002 Actual Emissions (tons/yr)
VOC	21.2	21.23
HAPs	-	11.4
TSP	6.4	0.9
PM_{10}	6.4	0.8
SO_2	5.0	0.8
NOx	39.4	5.15
CO	197.1	25.75
Fugitive TSP	342.5	241.7
Fugitive PM_{10}	72.6	51.3

The potential-to-emit VOC emissions are calculated from EPA's Landfill Gas Emission Model (LandGEM). This emission rate is based on the following: maximum waste contained within the landfill, 75% collection efficiency of the landfill gas, and control with the flare. The actual VOC emissions are also based on LandGEM. However, this emission rate was the emission rate predicted by the model for the 2002 calendar year (As reported on the APENs dated 1/31/2003). 2002 actual emissions are higher than the PTE emissions due to the use of a15.2% collection efficiency for that year.

In the operating permit, compliance with the annual limits for the Fugitive PM_{10} and TSP emissions will be demonstrated by the implementation of the Fugitive Emissions Control Plan. The source will be required to certify semi-annually that the Fugitive Emissions Control Plan is being implemented. The source will also be required to calculate the VOC emissions annually, using LandGEM, or the AP-42 2.4 calculation method. These methods predict the landfill gas emissions only on an annual basis. Trying to use the model to estimate emissions on a monthly basis would not yield valuable results. This is the reason why an annual frequency for the VOC calculation is required instead of a monthly frequency. Collected landfill gas is sent to the flare and combustion emissions will result. The source will need to calculate combustion emissions on a rolling 12-month basis. The combustion emission factors are from the flare manufacturer and AP-42 2.4. Any exceedances of the annual limits will result in the source being out of compliance with the terms and conditions of the operating permit. The source will provide compliance monitoring reports semi-annually and compliance certification reports annually.

This landfill is located next to another closed landfill: Denver Regional Landfill North (DRLN) – construction permit 83WE412 – operating permit 99OPWE215. These landfills are considered a single source for both Title V and PSD purposes. Both of these landfills have landfill gas collection systems installed. All the collected landfill gas is controlled with the flare permitted by DRLS.

Leachate: DRLS sent in an APEN for leachate activities. The emissions were below APEN reporting levels. I will list the leachate activities as an insignificant activity in the operating permit. This activity should be considered APEN exempt unless emissions increase above reporting levels.

This landfill started accepting waste in January 1988 and is projected to close in 2007. DRLS has an

estimated 7.6 million tons of refuse in place (as of May 2002), with space remaining for 4.2 million tons. This design of the landfill exceeds 2.5 million Mg, and it is subject to the requirements of the Standards of Performance for Municipal Solid Waste Landfills (40 CFR Part 60, Subpart WWW, as adopted in Colorado Regulation No. 6, Part A). NSPS WWW requires landfills over 2.5 million Mg to obtain an operating permit.

The source obtained construction permit 12WE652 on October 30, 1979. The construction permit was modified numerous times over the years. Most recently Initial Approval Construction Permit Modification No. 8, 12WE652, was issued on May 24, 2002. The Final Approval construction permit will not be issued for this facility. Instead, it has been incorporated into the operating permit in accordance with the procedures outlined in Colorado Regulation No. 3, Part C.

Compliance Assurance Monitoring (CAM)
The pre-control emissions from this landfill do not exceed major source levels, thus CAM does not apply.

3. Emission Sources

The following emission sources are specifically regulated under the terms and conditions of the operating permit for this facility.

F001 – Landfill Gas Emissions

a. **Applicable Requirements** – The requirements that are applicable to this emission point are the VOC emission limit, the NSPS Subpart WWW regulations, and the MACT Subpart AAAA regulations. The uncontrolled NMOC emissions from this landfill exceed 50 megagrams per year and this landfill is required to have a gas collection and control system. The MACT requirements are very similar to the NSPS requirements. The MACT additionally requires the development and implementation of a startup, shutdown, and malfunction plan and the submittal of reports on a more frequent basis. The MACT applies to both major and area sources.

b. Emission Factors* – The landfill gas emissions were estimated with EPA's Landfill Gas Model Version 2.0. This model is based on the emission calculations found in AP-42 2.4 Emission Calculations for Municipal Solid Waste Landfills. The values of the parameters used in this model were:

Lo = methane generation potential (cubic meters per megagrams solid waste). A value of 100 m^3/megagrams was used in the model. This value is acceptable when used to demonstrate compliance with the permit limit. However, the source must use a value of 170 m^3/megagrams for the annual NMOC emission report. This requirement is outlined in §60.754(a)(1).

K= methane generation rate constant (year $^{-1}$). The default value for this parameter is 0.05. However, the landfill is located in an area that receives less than 25 inches of rain per year, based on a thirty-year annual average. The regulation allows the source to use a value of 0.02 instead of 0.05.

C = concentration of NMOC (parts per million by volume as hexane). Tier II testing was

conducted in 3/97 per NSPS WWW. The NMOC concentration was measured as 613.5 ppmv. 613.5 ppmv was used in the operating permit application to estimate emissions.

HAP Concentrations: Emission estimates used different HAP concentrations than the default AP-42 values. These concentrations are based on gas samples that were taken from the landfill in June 1999. The default AP-42 concentrations were used for the HAPs that were not included in the testing.

Landfill capacity: The capacity of this landfill is 11.8 million tons of degradable waste. This value was given in the Title V Permit Application.

- Note that these values are acceptable for permit compliance calculations, but not the NSPS & MACT compliance calculations. The values specified in the NSPS & MACT must be used for NSPS & MACT calculations and reports.

c. **Monitoring and Compliance** – The source will demonstrate compliance with the VOC emission limit with EPA's Landfill Gas Model, Version 2.0 or the most current version. This model will be run on an annual basis. The NMOC result from the model will be multiplied by 0.39 (39%) to derive the VOC emissions. The model predicts the landfill gas emissions on an annual basis. Therefore, it is not necessary for the source to demonstrate compliance with the emission limit on a rolling 12-month basis. The source certified in the operating permit application that the landfill is currently in compliance with the applicable requirements.

C001 – Flare

This is an enclosed air-assisted flare.

a. **Applicable Requirements** – The requirements that are applicable to this emission point are the combustion emission limits, landfill gas combustion limit, the 98% control efficiency requirement, the NSPS Subpart WWW regulations, and the MACT Subpart AAAA regulations. The source requested an increase in the SO2 emission limit to 5.0 ton/yr. The operating permit limit reflects this request.

b. **Emission Factors** – Emissions of criteria pollutants shall be based on the following factors:

Pollutant	Emission Factor	Source
TSP	17 pounds per mmdscf methane	AP-42 2.4
PM10	17 pounds per mmdscf methane	AP-42 2.4
CO	0.5 pounds per mmbtu	Flare manufacturer
NOx	0.1 pounds per mmbtu	Flare manufacturer
SO2	Mass Balance of Sulfur containing compounds generation estimated from model.	AP-42 2.4

c. **Monitoring and Compliance** – The source will demonstrate compliance with the combustion emission limits using the emission factors above. The source must be in compliance on a rolling 12-month basis. The amount of landfill gas combusted will be recorded and must be in compliance on a rolling 12-month basis.

The flare destruction efficiency was tested on November 6, 2002. The flare achieved greater than 98% control while operating at 1220º F. The stack test also revealed compliance with the 20 ppmvd NMOC limit found in NSPS WWW. Ongoing compliance with the 98% control requirement and the 20 ppmvd NMOC limit will be achieved by maintaining the flare temperature at or greater than 1220º F. This temperature is monitored on a daily basis. Additionally, NSPS WWW requires monitoring of temperature on a continuous basis and measurement of gas flow. The flare must be observed on a weekly basis for the presence of visible emissions. A Method 9 observation must be conducted if visible emissions are viewed during the weekly check. The cause of any visible emissions should be investigated and corrective actions taken. The opacity limit is 30% as required for flares in Colorado's Regulation No.1.

The 11/6/2002 stack test results show emissions of NMOC at 0.9 ppmvd which is well below the NSPS WWW limit of 20 ppmvd. Flare efficiency was calculated to be 99.98%. CO emissions were estimated to be 13.5 tons per year (based on 8760 hours of operation per year). Both the flare efficiency and CO emissions are well in compliance with the permit limits of 98% control and 197.1 tons per year.

Originally, the Division thought that this flare was subject to the 40 CFR Part 60.18 requirements for flares. However, after further review, the Division discovered that Subpart WWW only requires compliance with 60.18 for open flares. The flare at this landfill is an enclosed flare. Subpart WWW requires enclosed flares (referred to as enclosed combustion devices) to conduct a stack test to determine compliance. Open flares can not easily be stack tested and that is the reason compliance with 60.18 is required for open flares.

The BTU content and methane content of the landfill gas are used in the combustion emission calculations. The source must test a sample of the landfill gas on an annual basis to determine the heat (BTU) content and methane content of the landfill gas. The most recent test results should be used in the emission calculations.

F003 - Fugitive Particulate Matter Emissions

Fugitive particulate emissions will result from on-site vehicle traffic, landfill excavation, daily cover application, storage piles, and disturbed areas. Watering, vehicle speeds, and revegetation will be used to control emissions from these sources.

a. Applicable Requirements – The regulations that are applicable to the fugitive particulate matter emissions are found in Colorado Regulation No.1.III.D. Specifically, the source must have a fugitive dust control plan to minimize the emissions. The 20% opacity guideline, the off-property transport provision, and the nuisance provision are also applicable to this emission point.

This permit contains fugitive particulate matter emission limits. Compliance with the fugitive emissions control plan serves to demonstrate compliance with the emission limits. The source requested an increase in the fugitive TSP and PM10 emission limits to 342.5 ton/yr and 72.6 ton/yr. The operating permit limits reflect this request.

This Operating Permit contains annual waste acceptance limits from the construction permit. These limits indirectly limit the fugitive dust and landfill gas emissions since the amount of incoming waste determines the amount of haul road traffic and the amount of landfilled waste will also determine how much landfill gas is generated.

b. Emission Factors – The permitted fugitive particulate matter emissions were calculated using various sections of AP-42.

c. Monitoring and Compliance – The source will demonstrate compliance with the particulate matter emission limits by implementing the Fugitive Emissions Control Plan that is outlined in the permit. In addition, the source will be required to perform a weekly check of the measures in the plan to ensure that the plan is being implemented and it is effective. The source certified in the operating permit application that the landfill is currently in compliance with the applicable requirements.

Modeling of the new PM10 limit is necessary since the emission limit has increased. The source's consultant negotiated with the Division for the use of an appropriate background concentration. The source submitted an acceptable modeling analysis to the Division on February 24, 2005. This modeling showed compliance with the NAAQS for PM_{10}.

Emission Factors

From time to time published emission factors and/or other emission estimating methods are changed based on new or improved data. A logical concern is what happens if the use of the new factors/methods in a calculation results in a source being out of compliance with a permit limit. For this operating permit, the emission factors, equations, and/or other emission estimating methods included in the permit are considered to be fixed until changed by the permit. Obviously, emission factors dependent of the fuel sulfur content or heat content of the fuel cannot be fixed and will vary with the test results. The method for determining the emissions is, however, fixed. It is the responsibility of the permittee to be aware of changes in the emission factors, etc. and to notify the Division in writing of impacts on the permit requirements when there is a change. Upon notification, the Division will work with the permittee to address the situation. In addition, the Division will review the factors, etc. as appropriate during permit modifications and renewals.

1. Final Approval for Initial Construction Permits

The Construction Permit has not yet been issued Final Approval. Since these sources will have been in operation for more than 180 days by the due date of the first semi-annual monitoring required by the operating permit, the Division will consider the Responsible Official certification submitted with that report to serve as the self certification for Final Approval for these sources.

2. Insignificant Activities

The following is a list of insignificant activities that was provided by the source to assist in the understanding of the facility layout:

- Leachate management
- One 1000 gallon off-road fuel AST.
- One 6000 gallon on-road fuel AST.

- One 500 gallon gasoline UST.
- Landscaping and site housekeeping devices.
- Miscellaneous and routine vehicle and site maintenance materials stored in drums and containers.

3. Alternative Operating Scenarios

There are no alternative operating scenarios for this facility.

4. Accidental Release - 112(r)

Section 112(r) of the Clean Air Act mandates a new federal focus on the prevention of chemical accidents. Sources subject to these provisions must develop and implement risk management programs that include hazard assessment, a prevention program, and an emergency response program. They must prepare and implement a Risk Management Plan (RMP) as specified in the Rule.

Based on the information provided by the applicant, this facility is not subject to the provisions of the Accidental Release Prevention Program (Section 112(r) of the Federal Clean Air Act).